all on their own

unfacilitated making experiences in exhibits

kat dornian
andrew poppen
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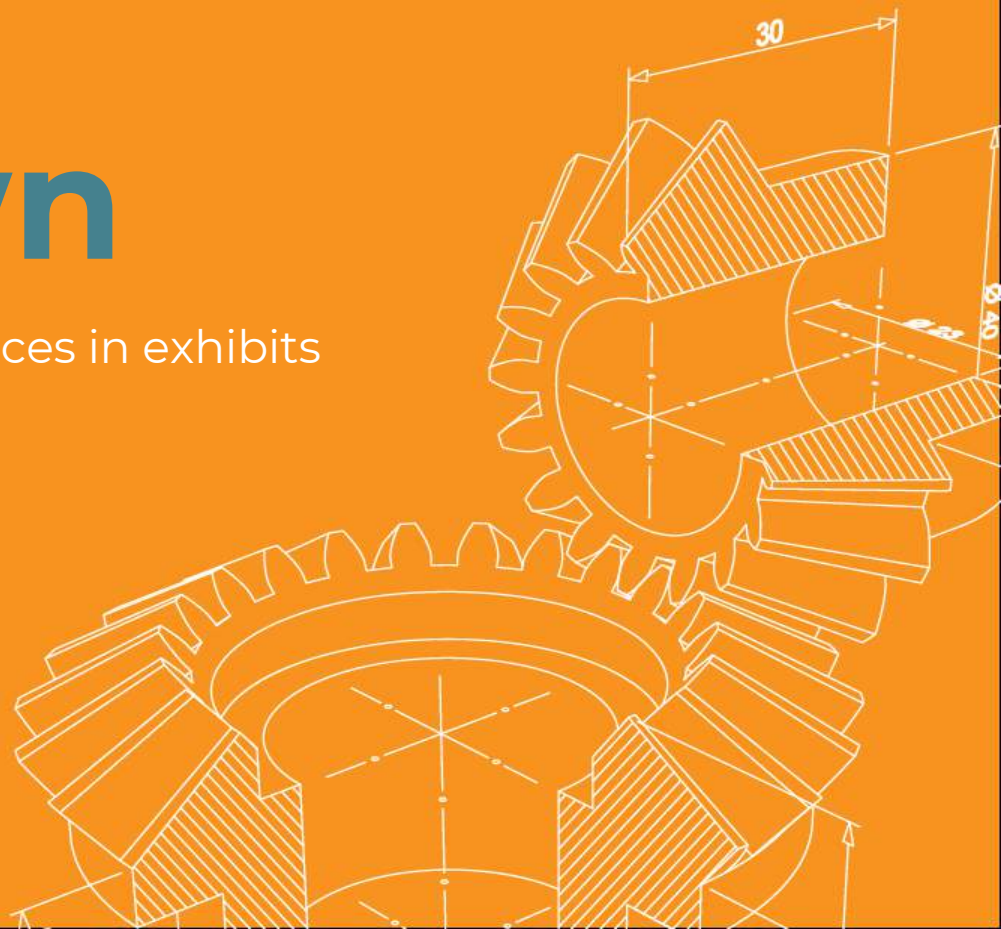
october 1, 2018 | 2:30 pm



Andrew Poppen

Exhibits Developer

Science Center of Iowa

- 110,000 sqft
- 6 exhibit galleries
- 50 full time staff
- 2 exhibits staff
- 7 major exhibit reno’s in last 4 years

Project Goals

- Introduce “maker movement” to community
- Encourage creative exploration
- Demonstrate real-world connections
- Multiple levels of entry
- Seasonal offering (initially)
- Keep overhead as low as possible

Institutional Challenges

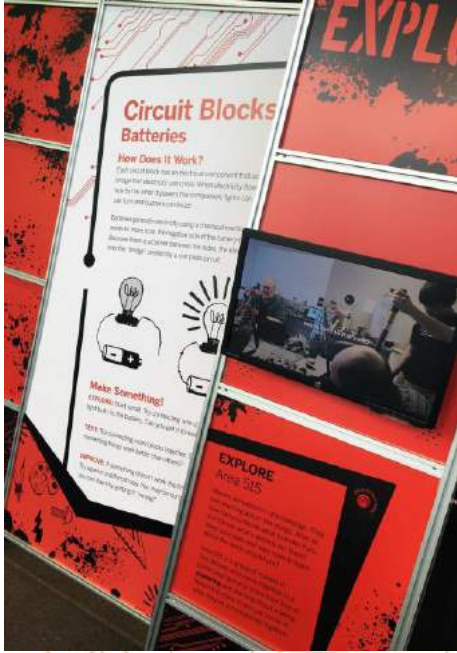
- No consistent staff presence in exhibit galleries
- Busy exhibits team is also maintenance team
- Shared space
- Ongoing cost of consumables

Makers Studio

- Exhibit based around the steps of design thinking/iterative process/maker mindset, etc...
  - Explore
  - Design
  - Build
  - Test/Improve

- A space about making

- 3,000 sqft
- 10 exhibits, 1 facilitated activity
- Zoned by iterative process.
- Local maker videos



- Exhibits all revolve around kinesthetic open activities
- Traditional didactic content supplements for the curious

Case Study 1

Maglev Wind Racers

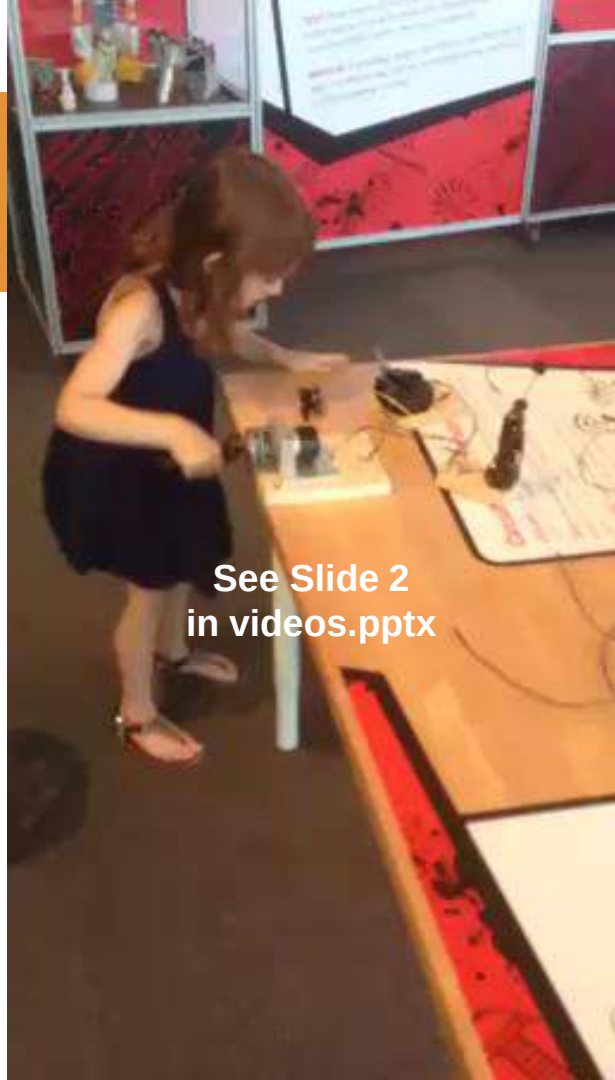
Visitors are given paper and straws and tasked with creating a sail to propel levitating cars down the track

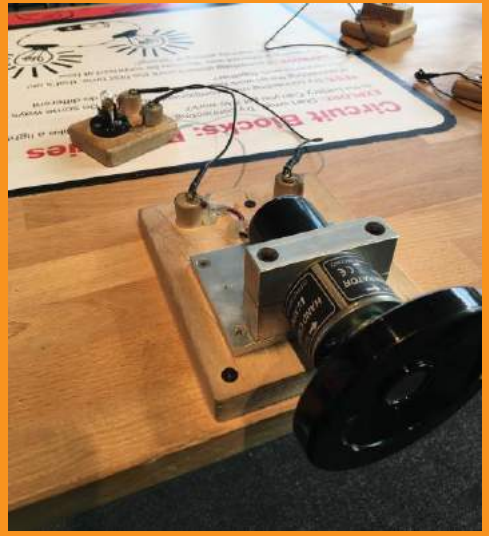
- Failure is good in small doses
- Limitations breed creativity
- Keep materials simple
  - helps with cost
  - helps balance dwell time
  - helps with staff mental health
- Yes the cars are free floating, and no, no one steals them.

Case Study 2

Bulletproof Circuit Blocks

The circuit blocks you know and... have feelings about. Except tweaked like Doomsday to live as long as possible.





- Limit variety for your own sake
- Resettable fuse added to battery packs prevents short circuit
- Magnetic connections and brad tipped wires
- Handcrank generators, but with wheels instead of cranks

Self Serve Tinkering at the Montshire

SHERLOCK TERRY
ASSISTANT DIRECTOR OF EXHIBITS

MONTSHIRE
MUSEUM OF
SCIENCE


esign It
The Tinkering Lab
GOLDENFLOW
DAIRY FARMS

Tinkering @ Montshire

MONTSHIRE MUSEUM OF SCIENCE

Design Principles
INPUTS
(Designed experiences are/incorporate/leverage)

- Real Tools
- A Problem Worth Solving/ Engaging & Fun
- Personally Relevant / Interest Driven / Familiar Entry/Connection Point (story telling)
- Encourage Learning in Social Groups
- Art & Design - visual (Allowing for, encourage visitor engagement)
- Inclusive

open-ended

+ Tangible project-Based

Practices
ACTIVITIES
(Learner participation; What we design to support)

- opportunities to Develop Engineering Skills
- opportunities to Develop Problem Solving Mindset
- Challenging--Opportunities to Develop Grit
- (Room for) Creativity/ Your Own Divergent Solution (pathway)
- Sharing Work/Working Together
- opportunities for authentics (sp?)

Engagement Outcomes
(As a result, learners...)

- (Engage in/with) Rich STEM Content
- Promote Community of Learning

prolonged engagement
complete something


MONTSHIRE
MUSEUM OF
SCIENCE


MONTSHIRE
MUSEUM OF
SCIENCE

MONTSHIRE MUSEUM OF SCIENCE

Key considerations for designing self serve tinkering activities

- Self serve activities need extra careful design
- Keep your goals in the forefront of your thinking
- Design to your intended audience
- Coordinate facilitation and maintenance
- Consider the gallery space/context
- Good layout/navigation is essential
- Signage is your friend

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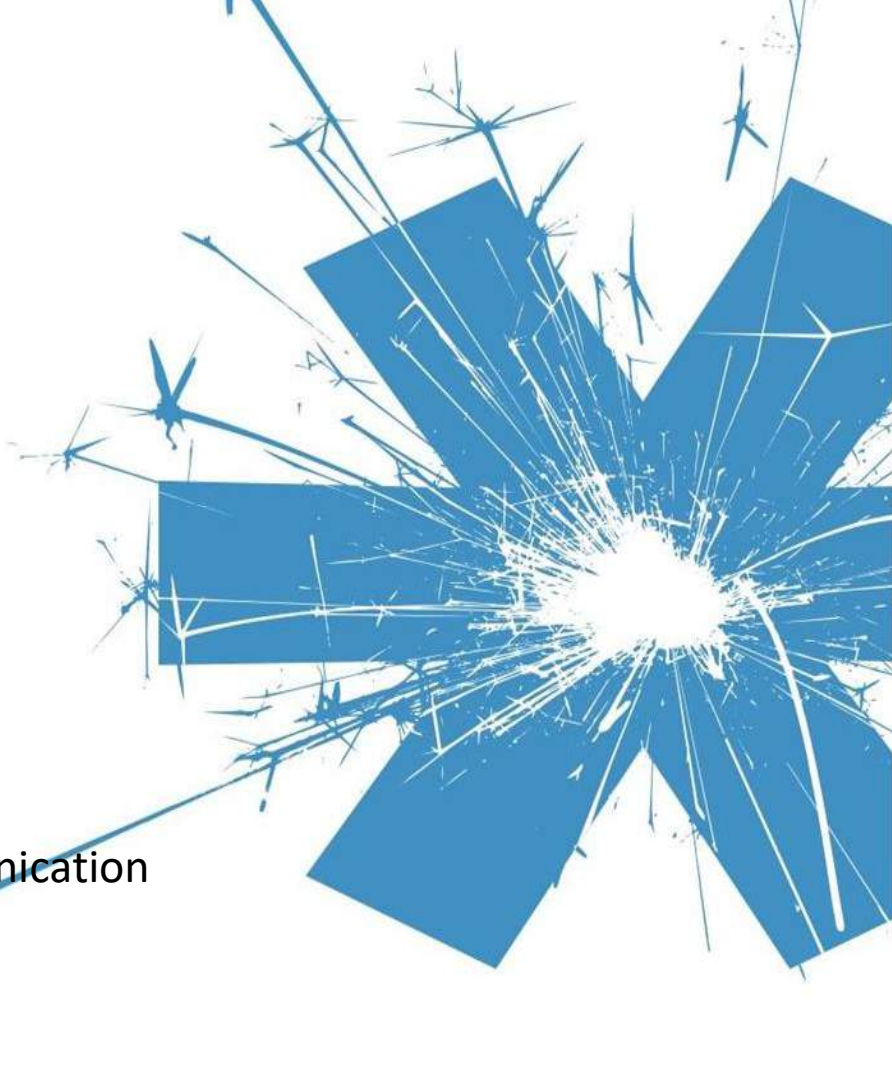
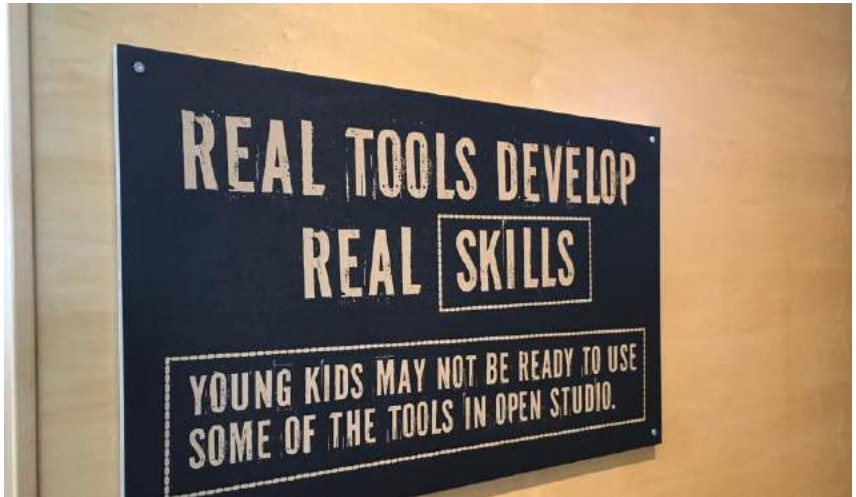
Making in a Low-Facilitation Maker Gallery

Kat Dornian, Champion of Engineering Communication



Open Studio

- Make and Tinker
- 7000 sqft
- 25 exhibits
- 1-2 facilitators
- Animation, Music, Electronics, Building, Fashion, Design



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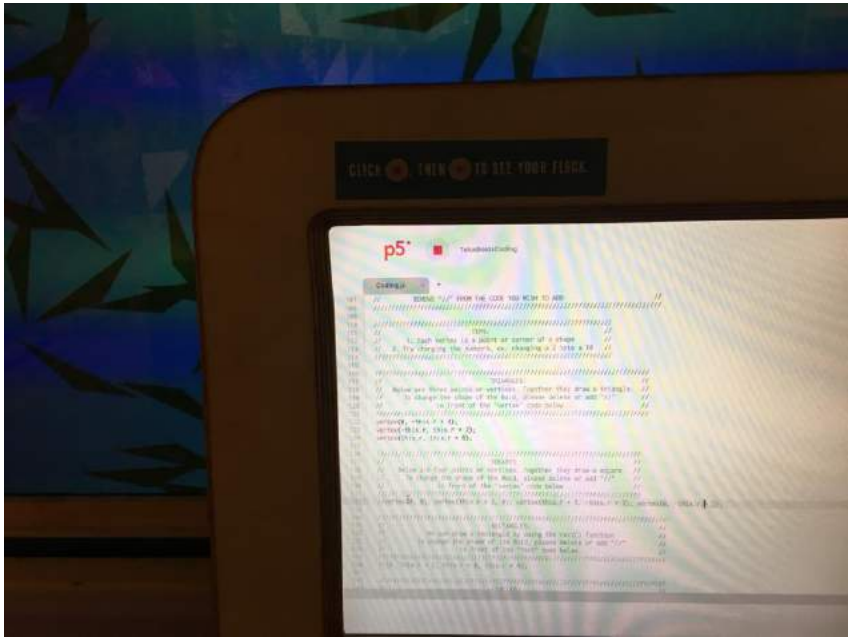
Case Study:

Hack the Flock



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Case Study:

Take It Apart & Play with Circuits & Hot Glue Gun Table

Case Study:

Take It Apart & Play with Circuits & Hot Glue Gun Table

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Take-Aways

- Allow visitors to find a variety of challenges and solutions
- Use prompts and labels thoughtfully
- Past-creations as prompts
- Visitors as facilitators
- Range of activities as strength

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Open Ended

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Minimally

Scaffolded

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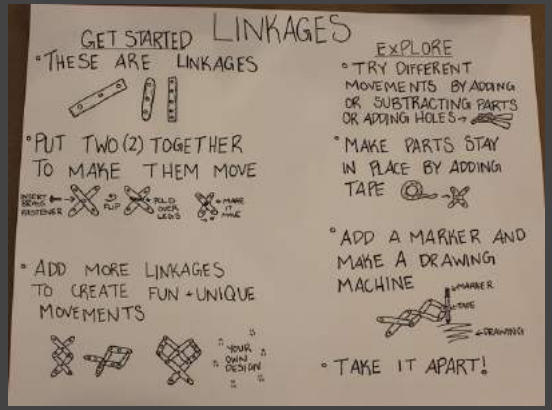

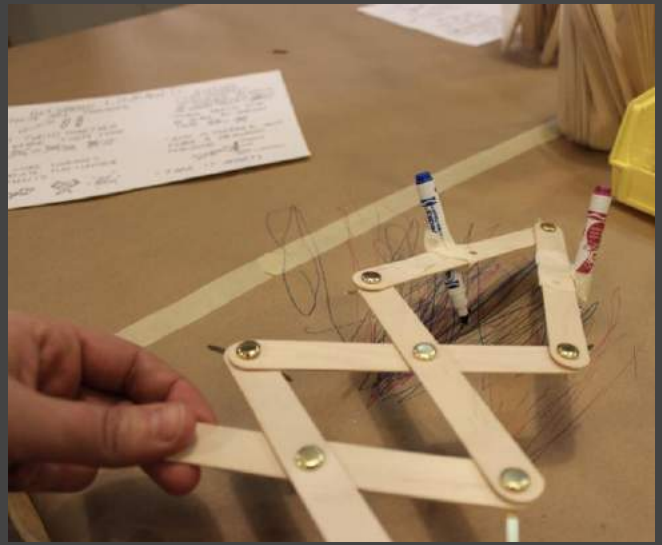

Scaffolded

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Power Tools

?

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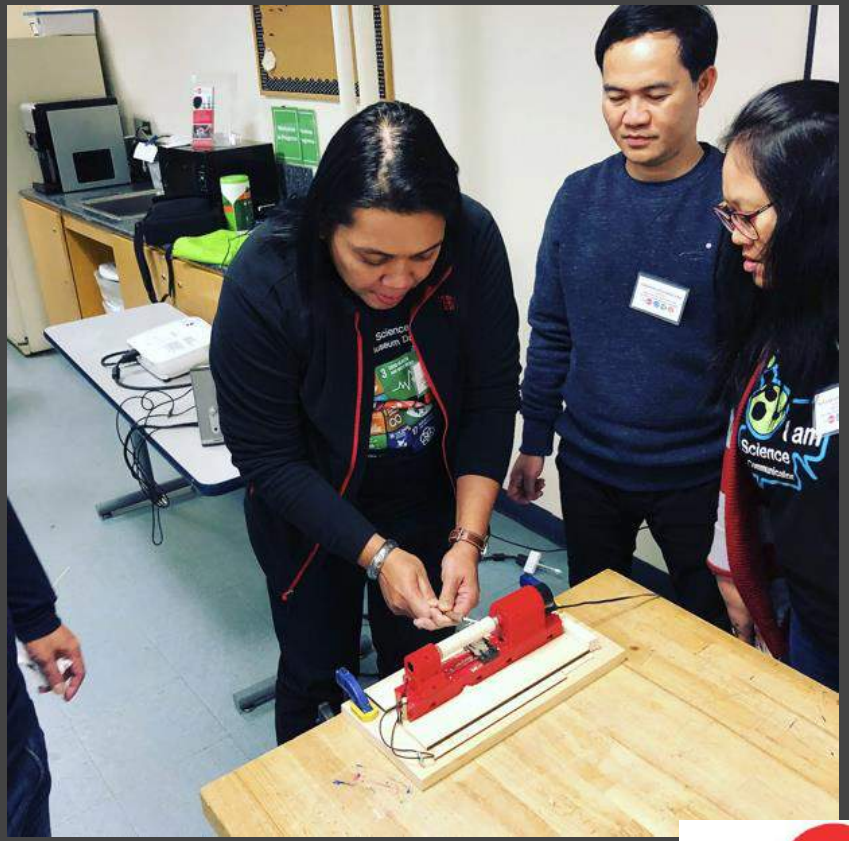

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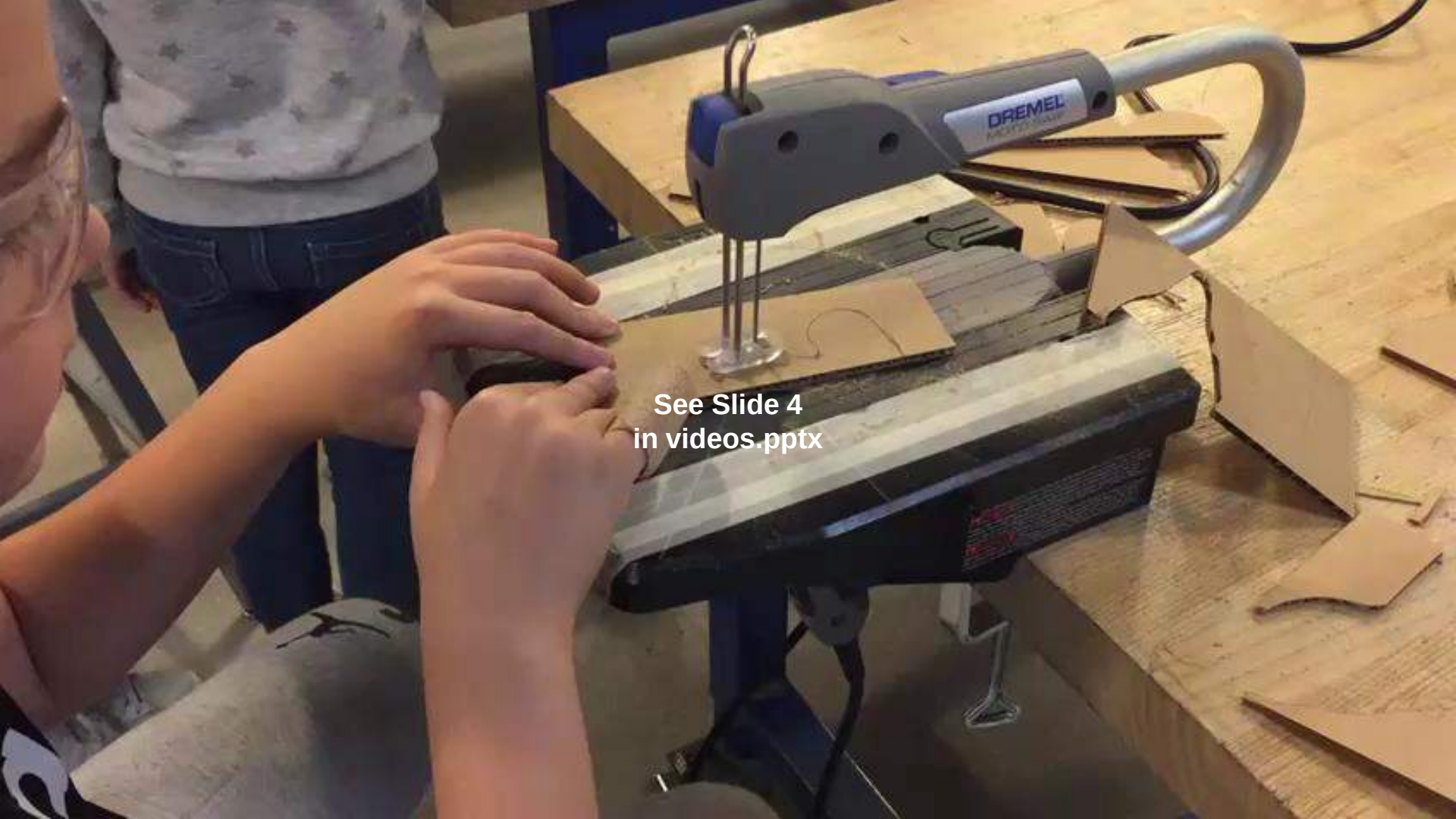

See Slide 4
in videos.pptx

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I Can

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Things to consider

- Objectives: What would you like to see happen?
- Flexibility: Open to change and modification.
- Trust: Step back and provide a platform for personal exploration.
- Do It: If your not sure if it will work put it on a table and see what happens.

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The Big Questions

What's the biggest obstacle or downside with low/no facilitation?

What is different about designing a unfacilitated activity?

How do you encourage positive interactions?

What are the advantages of going unfacilitated?

How to you determine your goals for a project and manage expectations?

What role does signage play in your spaces?

What about the mess?

How do you incorporate other departments in your building?